7. TANK SITES

Remedial action is required for three tank sites: the V-Tanks sites (TSF-09 and TSF-18) and the PM-2A Tanks site (TSF-26), herein referred to as the V-Tanks and PM-2A Tanks. Releases at these sites may pose an imminent and substantial endangerment to human health and the environment. The site characteristics including the nature and extent of contamination, summary of site risks, remedial action alternatives, and the selected remedy are presented for these sites. More detailed information about the tank sites can be found in the OU 1-10 RI/FS Report (DOE-ID 1997b).

7.1 V-Tanks

The two V-Tanks sites (TSF-09 and TSF-18) have similar attributes and are located in the same area (Figure 7-1). Because of the similarities between the two sites, they were evaluated together.

The V-Tank site, TSF-09, includes three abandoned 37,850-L (10,000-gal) underground storage tanks (USTs), the contents of the tanks, and the surrounding contaminated soil. The tanks are approximately 3 m (10 ft) below ground surface (bgs). Two of the tanks each contain approximately 4,542 L (1,200 gal) of liquid and between 1,703 and 2,081 L (450 and 550 gal) of sludge. The third tank contains approximately 22,712 L (6,000 gal) of liquid and 2,574 L (680 gal) of sludge. The TSF-09 CERCLA site does include ancillary piping in the immediate vicinity of the tanks.

The V-Tank site, TSF-18, includes an abandoned 1,514-L (400-gal) UST, a sand filter, the tank contents, and the surrounding soil. The tank is approximately 2 m (7 ft) bgs. The tank contains approximately 416 L (110 gal) of liquid and 94 L (25 gal) of sludge. The TSF-18 CERCLA site does include ancillary piping in the immediate vicinity of the tank and sand filter.

The tanks were installed in the early 1950s as part of a system designed to collect and treat radioactive liquid effluents from TAN operations. The soil is contaminated with Cs-137 by spills when waste was transferred to and from the tanks. The tank contents are contaminated with radionuclides, heavy metals, organic compounds, and polychlorinated biphenyls (PCBs). Contamination has been detected throughout the 15.2- by 24.4-m (50- by 80-ft) area and to a depth of 14 m (47 ft).

Currently, the V-Tanks are administratively controlled. The sites are fenced and posted with signs that identify them as CERCLA sites. No activities can be performed at the sites without contacting the INEEL Environmental Restoration Program, and entry into the sites requires radiological control precautions. The purpose of these controls is to keep worker exposures as low as reasonably achievable (ALARA), and to prevent the spread of contaminated soil. The controls reduce current and future occupational exposure at the sites to acceptable levels.

7.1.1 Summary of Site Risks

A HHRA and an ERA were conducted for the two V-Tanks. The results of the assessments indicate that this site may present an imminent and substantial endangerment to human health and the environment, and are summarized in Table 7-1. A more detailed discussion of the methods used in the risk assessment process is presented in Section 6 of this ROD. Detailed information about the results of the V-Tanks HHRA and ERA is presented in Sections 6 and 7 of the OU 1-10 RI/FS Report.

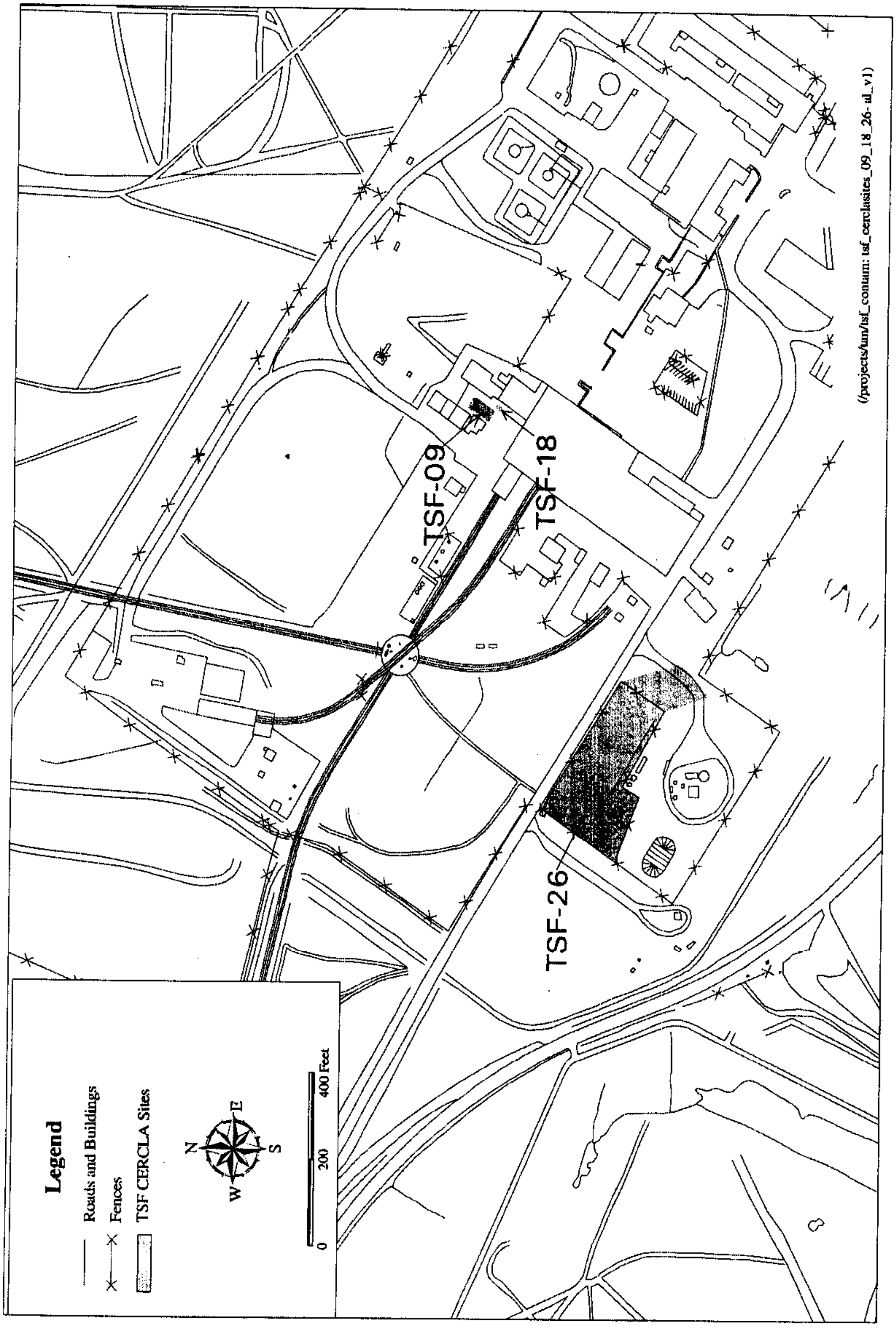

Figure 7-1. Tank sites.

Table 7-1. Summary of risk estimates for the V-Tanks soil.

Scenario	Total Cancer Risk	Total Hazard Index
Occupational	8 in 10,000	0.00001
Residential	4 in 1,000	1

7.1.1.1 Human Health Risks. The exposure route and the associated COCs that produce calculated risks greater than or equal to 1 in 10,000 at the V-Tanks include external radiation exposure of current workers by Cs-137 and Co-60, and external radiation exposure of future workers and residents by Cs-137 from surface and subsurface soil.

7.1.1.2 Ecological Risk Assessment. The soil at the V-Tanks was identified in the ERA as having an ecological risk (i.e., the hazard index [HI]) less than the threshold level of 1 and is considered not to pose an unacceptable threat to ecological receptors. No further ERA will be performed at this site.

7.1.2 Summary of Alternatives

In accordance with CERCLA Section 121, the OU 1-10 FS identified and evaluated remediation alternatives. Any selected alternative had to achieve the remediation goal of 23.3 pCi/g for Cs-137. The Cs-137 FRG of 23.3 pCi/g is a risk-based remediation goal that ensures protectiveness of human health and the environment. This FRG will provide unrestricted land use in 100 years. The principal ARARs evaluated for the V-Tanks during alternative evaluation were the Hazardous Waste Management Act closure requirements, RCRA treatment and disposal requirements, and PCB disposal criteria. In addition to the "No Action" alternative, three alternatives were evaluated to remediate the V-Tanks:

- Alternative 2: Soil and Tank Removal, Ex Situ Treatment of Tank Contents, and Disposal
- Alternative 3: Soil Excavation and Disposal, In Situ Stabilization of Tank Contents
- Alternative 4: In Situ Vitrification.

Details of the alternatives considered and the evaluation process are included in Sections 10 and 11 of the OU 1-10 RI/FS Report.

7.1.2.1 Alternative 2: Soil and Tank Removal, Ex Situ Treatment of Tank Contents, and Disposal. Under Alternative 2, a temporary structure to protect workers and the environment would be built over the tank sites. The soil would be excavated, the tank contents removed, and the tanks decontaminated. The tanks would be excavated and disposed, and the excavated areas would be backfilled with clean soil.

Alternative 2 includes two variations differing in whether treatment is within the boundaries of the INEEL or off the INEEL. Treatment within the boundaries of the INEEL would consist of storing the tank waste at the INEEL followed by treatment at a facility approved for treatment of RCRA and Toxic Substances Control Act (TSCA) mixed waste. Off-Site treatment would involve primarily the same process as on-Site, but the tank contents would be shipped off-Site to an approved treatment facility. The cost for this alternative is $8.9 million.

Both variations of Alternative 2 would accomplish the site RAOs in a short timeframe because the contamination and tank contents would be permanently removed.

Both variations of Alternative 2 would protect human health and the environment and would comply with the applicable regulations. Under both variations, the thermal treatment would reduce the toxicity, mobility, and volume of the contamination and be effective long-term because the contamination would be removed. The short-term effectiveness of Alternative 2 would be moderate, because it would require operator attendance and maintenance, increasing the potential for worker exposure. In addition, the alternative would require transportation of contaminants to the treatment facility. Implementability for both variations would be moderate since approved treatment facilities have been permitted and under construction to treat this type of waste.

7.1.2.2 Alternative 3: Soil Extraction and Disposal, In Situ Stabilization of Tank Contents. Alternative 3 would involve building a temporary containment structure, excavating and disposing of the contaminated soil at an acceptable repository, and stabilizing the tank contents in place. The excavated areas would be backfilled with clean soil. Alternative 3 includes two variations, differing in the disposal location—on the INEEL (Alternative 3a) or off the INEEL (Alternative 3b)—for the excavated soil. Because contaminants would be left in place, institutional controls and long-term monitoring would be required. The costs of these alternatives are $5.0 and $5.8 million, respectively.

Both variations of Alternative 3 would accomplish the site RAOs in a short timeframe because the tank contents would be stabilized to prevent releases to the environment. To accomplish the RAOs, long-term institutional controls must be implemented to protect future occupational and residential land use.

Both variations of Alternative 3 would protect human health and the environment. However, the IDHW has determined, after the release of the Proposed Plan, that the V-Tanks are part of a tank system and are subject to State of Idaho HWMA closure requirements. Based on this information, In Situ Stabilization does not meet ARARs since this technology will not meet the LDR ARARs. The combination of high levels of organic compounds and heavy metals may make it difficult to implement; hence, implementability and long-term effectiveness would be uncertain. Both Alternative 3 variations would reduce the mobility of the contamination. Solidification could result in an increased volume of the contaminated materials. Neither variation would reduce toxicity unless pretreatment to destroy organic compounds and PCBs were performed, which would be difficult to accomplish in situ.

7.1.2.3 Alternative 4: In Situ Vitrification. Alternative 4 would involve in situ vitrification (ISV) of the tanks, their contents, and the surrounding soil. Contaminated soil not treated by ISV would be excavated and disposed at an approved facility such as the INEEL CERCLA Disposal Facility (ICDF). An electrical current would be used to melt the tanks, contents, and all contaminated soil around the tanks, which would then solidify into a glass-like material. The organic compounds, including PCBs, would be destroyed by the process. The heavy metals and radionuclides would still be present, but would be bound up in the glassy solid. Organic compounds and particulates released during the process would be captured and treated in an off-gas treatment system. A RCRA compliant cover and long-term monitoring are included as part of this remedy. The cost for this alternative is $15.9 million.

Alternative 4 would accomplish the site RAOs in a short timeframe since the contaminated soil and tank contents would be vitrified, which precludes release of contaminates to the environment. To accomplish the RAOs, long-term institutional controls and monitoring of the vitrified waste must be implemented to protect future occupational and residential land use.

Alternative 4 would protect human health and the environment and comply with the applicable regulations. In situ vitrification would reduce toxicity by destroying the organic compounds and PCBs. Mobility of the radionuclides and heavy metals would be reduced by dispersing them throughout and binding them into the glass-like solid. Short-term effectiveness of this alternative would be moderate. It would have the least potential for worker exposure to contaminants because the tank contents would not be directly contacted.

Following ISV, tests would be conducted to determine whether the process was successful in destroying organic compounds and PCBs, and completely immobilizing metals and radionuclides. Implementability and long-term effectiveness, therefore, are both ranked moderate.

7.1.3 Summary of Comparative Analysis of Alternatives

The nine CERCLA evaluation criteria specified in 40 CFR 300.430(e)(9)(iii) are grouped in three categories: (1) threshold criteria that relate directly to statutory findings and must be satisfied by each selected alternative, (2) balancing criteria used to refine the selection of candidate alternatives for the site by evaluating their effectiveness, implementability, and cost, and (3) modifying criteria that measure the acceptability of the alternatives to state agencies and the community. The following sections summarize the evaluation of the candidate remedial alternatives according to these criteria. Detailed comparative analyses can be found in Section 12 of the RI/FS Report.

7.1.3.1 Threshold Criteria. The two threshold criteria, which must be satisfied by the selected remedy, are overall protection of human health and the environment, and compliance with ARARs. Alternatives 2a3, 2b, and 4 meet both threshold criteria.

7.1.3.2 Balancing Criteria. The five balancing criteria are: (1) long-term effectiveness and permanence, (2) reduction of toxicity, mobility, or volume through treatment, (3) short-term effectiveness, (4) implementability, and (5) cost.

Alternative 2 best satisfies the criterion of long-term effectiveness because all contamination would be removed. Alternative 4 partially satisfies the long-term effectiveness criteria; additional studies would be needed to determine the destruction of organic compounds, PCBs, heavy metals, and radionuclides. Reduction of toxicity, mobility, or volume through treatment is best achieved by Alternatives 2 and 4. Alternative 2 uses treatment to reduce the waste toxicity, volume, and mobility. Alternative 4 would reduce the toxicity by destroying the organic compounds and PCBs, and reduce the mobility of the radionuclides and heavy metals by binding them into the glass-like solid. None of the alternatives would reduce toxicity of radionuclides. Short-term effectiveness is partially satisfied by Alternatives 2 and 4 due to the possibility of worker exposure to the waste. Alternative 4 partially satisfies the implementability criteria because additional studies would be needed to determine the destruction of organic compounds, PCBs, heavy metals, and radionuclides. Implementability is partially satisfied by Alternative 2 because treatment facilities have recently come online to accept the waste. Alternative 2 has the lowest estimated cost and Alternative 4 has the highest estimated cost.

7.1.3.3 Modifying Criteria. The modifying criteria, used in the final evaluation of remedial alternatives, are state and community acceptance. State acceptance is demonstrated by the IDHW concurrence with the selected remedial alternative and signature of this ROD. The IDHW was involved in the development and review of the RI/FS Report (DOE-ID 1997b), the Proposed Plans (DOE-ID 1998a and DOE-ID 1998b), the FS Supplement (DOE-ID 1998c), this ROD, and other project activities such as public meetings.

For community acceptance, the factors that are considered include which elements of the alternatives interested persons in the community support, have reservations about, or oppose. The comments received on the Proposed Plan form the record of these opinions and concerns.

Generally, the selected remedy is supported. The Responsiveness Summary (Part III) portion of this ROD documents the full range and content of the public comments received regarding the action at this site.

7.1.4 Selected Remedy: Alternative 2, Soil and Tank Removal, Ex Situ Treatment of Tank Contents, and Disposal.

Based on CERCLA requirement considerations, detailed analysis of alternatives, and public comments, the Agencies selected Alternative 2, Soil and Tank Removal, Ex Situ Treatment of Tank Contents, and Disposal. The selected remedy will satisfy the NCP by using treatment to address the principal threat waste posed by the V-Tank contents. The major components of the selected remedy for the V-Tanks include:

- Excavating contaminated soil
- Disposing the contaminated soil at an acceptable soil repository
- Sampling tank contents
- Removing tank contents and placing the contents into U.S. Department of Transportation (DOT) approved containers
- Transportation of the tank contents and other investigation-derived waste (IDW) to an off-Site treatment facility
- Treatment of tank contents and IDW at an approved RCRA and TSCA mixed waste treatment facility
- Disposing of treated tank contents and IDW at the ICDF, other acceptable facility, or the Waste Isolation Pilot Plan (WIPP)
- Decontamination of the tanks and removing the tanks for disposal
- Post-remediation soil sampling at the bottom of the excavation to verify FRGs are met and analyze for additional contaminants in the V-Tank content waste to perform a risk analysis in support of an institutional control determination at this site
- Filling the excavated area with clean soil, then contouring and grading to surrounding soil
- Institutional controls consisting of signs, access control, and land-use restrictions may be established and maintained, depending on the results of post-remediation sampling.

The selected remedy addresses the risks posed by the V-Tanks by effectively removing the source of contamination and, thus, breaking the pathway by which a future receptor may be exposed.

Modifications to the excavation equipment will be made as needed to provide shielding (e.g., lead windows and lead shielding on exterior-facing surfaces) and personal exposure protection (e.g., supplied air, positive-pressure ventilation systems, and high-efficiency particulate air [HEPA] filters). The following paragraphs detail the selected remedy.

Contaminated soil that is above the FRG of 23.3 pCi/g for Cs-137 will be removed to the bottom of the V-Tanks and will be packaged and disposed of at an acceptable soil repository. All debris (piping, IDW, etc.) will be disposed of in the same manner. The actual disposal location, which could be the proposed ICDF, or another facility on or off the INEEL, will be determined during remedial design following implementation of the ROD. Selection of the ICDF for disposal of TAN materials depends at least in part on the timeframe associated with operation of the facility (scheduled for receiving waste the Year 2005) and its waste acceptance criteria.

When the top of the tanks have been exposed the liquid in the tanks will be pumped into DOT approved containers for shipment to the treatment facility. Pumping of the tanks may include agitating the contents to homogenize the liquid and sludge layers, and adding combustible absorbent to meet treatment facility waste acceptance criteria.

The treatment facility will treat tank contents for PCBs, volatile and semivolatile organic compounds, and heavy metals and will reduce the volume of the waste. The treated residue will remain as a mixed waste and will be shipped back to the INEEL for storage pending final disposal at an approved disposal facility.

After the tank contents have been removed, the tank will be decontaminated. The tanks will be cut up and the scrap metal will be dispositioned appropriately.

Once the tanks and auxiliary equipment in the immediate area have been removed, samples will be collected and analyzed for contaminants identified in the V-Tank content waste from the bottom of the excavation to determine if institutional controls will be required based on risk. Once these samples have been collected, the site will be filled with clean fill material and contoured to surrounding areas.

Additional institutional controls may be required based on the contamination remaining onsite after completion of the remedial action. Evaluation and determination of these institutional controls will be documented in the OU 1-10 Institutional Controls Plan.

It needs to be noted that if implementation of this selected remedy have not been achieved within 5 years from the signature of this ROD, the Agencies will reevaluate the selected remedy at this site. Some changes may be made to the remedy as a result of the remedial design and construction process that result from the engineering design process.

7.1.4.1 Estimated Cost for the Selected Remedy. The estimated capital and maintenance cost for implementing the selected remedy for the V-Tanks is $8,893,348. The costs are presented in net present value, which allows for equal comparison of long-term and short-term alternatives while factoring in inflation. The costs of this alternative were revised because of new information and changes in assumptions since the RI/FS Report was prepared. Details of the cost estimates will be submitted to the Administrative Record and are summarized in Table 7-2; an explanation for the change in costs is provided in Section 11.

7.1.4.2 Protection of Human Health and the Environment. The primary measure of the criterion of providing overall protection of human health and the environment is the ability of an alternative to achieve RAOs. Preventing contamination exposure to a hypothetical future occupational worker and a hypothetical future resident is key to meeting RAOs and maintaining risk below acceptable levels.

Table 7-2. Cost estimate summary for the V-Tanks (TSF-09 and TSF-18) selected remedy.

		$ Fiscal Year (FY)-99
FFA/CO Management and Oversight		
	WAG 1 – Management	425,556
Remediation Oversight		
	Construction Oversight/Project Management	1,090,087
	Remedial Action Document Preparation	88,602
	Remedial Action Report	30,720
	Packaging, Shipping, Transportation Documentation	37,463
	WAG-Wide Remedial Action 5-Year Review	37,105
Remedial Design		
	Title Design Construction Document Package	214,300
	Remedial Design Documentation per WAG 1 Baseline	91,931
	Site Characterization	44,000
	Prefinal Inspection Report	7,500
Remedial Action		
	Site Preparation Labor and Equipment	1,191,000
	Soil and Tank Content Removal	366,500
	Tank and Piping System Preparation, Sizing, Disposal, and Backfilling	323,425
	Tank Content Preparation for Transport and Off-site Treatment	494,415
	Site Cleanup and Demobilization Activities	112,500
	Subcontractor Indirect Costs, Procurement Fees, and General and Administrative (G&A)	1,910,661
	Support Labor and Materials	225,850
	Transport and Disposal of Treated Waste at INEEL	173,582
CAPITAL COST SUBTOTAL		6,865,197
	Contingency @ 30%	2,059,559
TOTAL CAPITAL COST IN FY-99 DOLLARS		8,924,757

Table 7-2. (continued).

		$ Fiscal Year (FY)-99
TOTAL CAPITAL COST IN NET PRESENT VALUE		8,046,691
Operations		
	WAG 1 – Management	1,128,949
	WAG 1 RA 5-Year Reviews	360,000
	Site Maintenance	186,250
Decontamination and Dismantlement		N/A
Surveillance and Monitoring		N/A
OPERATION AND MAINTENANCE (O&M) COST SUBTOTAL		1,675,199[a]
	Contingency @ 30%	502,560
TOTAL O&M COST IN FY-99 DOLLARS		2,177,758
TOTAL O&M COST IN NET PRESENT VALUE		846,657
TOTAL PROJECT COST IN NET PRESENT VALUE		8,893,348

a. O&M was calculated using 100 years of maintenance and a discount rate of 5%.

Alternative 2, Soil and Tank Removal, Ex Situ Treatment of Tank Contents, and Disposal, would meet the RAOs and, therefore, be effective in protecting human health and the environment. However, in order to reduce the potential for unacceptable exposures to current workers, the existing institutional controls will be maintained until remedial action is completed and confirmation sampling has verified that remedial actions have met the FRG.

7.1.4.3 Compliance with ARARs. The selected remedy meets the identified ARARs. The ARARs, including chemical-specific, action-specific, and to-be-considered (TBC) guidance, for Alternative 2, Soil and Tank Removal, Ex Situ Treatment of Tank Contents, and Disposal are shown in Table 7-3.

7.1.4.4 Cost Effectiveness. The selected remedial action is cost-effective because it best satisfies ARARs without requiring waivers from the Agencies and will reduce the volume and mobility of Cs-137. When compared to other potential remedial alternatives, the selected remedy provides the best balance among cost, meeting ARARs, reducing the volume, and eliminating the mobility of Cs-137. The selected remedy will allow unrestricted land use by permanently removing the contamination.

Table 7-3. ARARs for the V-Tanks (TSF-09 and TSF-18) selected remedy.

Category	Citation	Reason	Relevancy[a]
Action Specific ARARs			
Rules for the Control of Air Pollution in Idaho	"Toxic Substances" IDAPA 16.01.01.161 "Toxic Air Emissions" IDAPA 16.01.01.585 and .586	The release of carcinogenic and noncarcinogenic contaminants into the air must be estimated before start of construction, controlled, if necessary, and monitored during excavation of soil, removal of the waste and tank system, and decontamination of the tanks and piping.	A
	"Fugitive Dust" IDAPA 16.01.01.650 and .651	Requires control of dust during excavation and removal of the tanks and piping.	A
	"Requirements for Portable Equipment" IDAPA 16.01.01.500.02	Portable equipment for removal of the waste, tanks, and piping, and any portable support equipment must be operated to meet state and federal air emissions rules.	A
NESHAPs	"Radionuclide Emissions from DOE Facilities" 40 CFR 61.92 "Emission Monitoring" 40 CFR 61.93 "Emission Compliance" 40 CFR 61.94(a)	Limits exposure of radioactive contamination release to 10 mrem/yr for the off-Site receptor, and establishes monitoring and compliance requirements.	A
Resource Conservation and Recovery Act (RCRA) – Standards Applicable to Generators of Hazardous Waste	"Hazardous Waste Determination" IDAPA 16.01.05.006 (40 CFR 262.11)	A hazardous waste determination (HWD) is required for the waste, tanks, piping, and any secondary waste generated during remediation.	A
	"Manifest" IDAPA 16.01.05.006 (40 CFR 262 Subpart B) "Pre-Transportation Requirements" IDAPA 16.01.05.006 (40 CFR 262.30 – 262.33)	Establishes requirements for transporting hazardous waste to treatment and/or disposal site.	A
RCRA – Standards for Owners and Operators of Hazardous Waste Treatment Storage and Disposal Units	"General Waste Analysis" IDAPA 16.01.05.008 (40 CFR 264.13(a)(1-3))	Analysis requirements apply to the soils, waste, tanks, piping, and secondary waste generated during remediation.	A

Table 7-3. (continued).

Category	Citation	Reason	Relevancy[a]
	"Security of Site" IDAPA 16.01.05.008 (40 CFR 264.14)	Measures must be taken to restrict access to the site during excavation, removal of the waste, tanks, and piping, and decontamination of the tank and piping.	A
	"General Inspections" IDAPA 16.01.05.008 (40 CFR 264.15)	Regular inspections must be performed during remediation.	A
	"Personnel Training" IDAPA 16.01.05.008 (40 CFR 264.16)	All personnel involved in soil excavation, removal of the waste, tanks, and piping, and decontamination of the tank and piping, must be trained.	A
	"Preparedness and Prevention" IDAPA 16.01.05.008 (40 CFR 264 Subpart C)	Applies to soil excavation, waste and tank system removal, and decontamination activities.	A
	"Contingency Plan and Emergency Procedures" IDAPA 16.01.05.008 (40 CFR 264 Subpart D)	Applies to soil excavation, waste and tank system removal, and decontamination activities.	A
	"Equipment Decontamination" IDAPA 16.01.05.008 (40 CFR 264.114)	All equipment used during remediation must be decontaminated if hazardous waste is contacted.	A
	"Use and Management of Containers" IDAPA 16.01.05.008 (40 CFR 264.171 – 178)	Applicable to the soils, waste, tanks, piping, and any secondary hazardous waste generated remediation that is managed in containers.	A
	"Tank Closure and Post Closure Care" IDAPA 16.01.05.008 (40 CFR 264.197(a))	Applies to the soils, waste, tanks, and piping.	A
RCRA – Land Disposal Restrictions	"Land Disposal Restriction (LDR) Treatment Standards" IDAPA 16.01.05.011 (40 CFR 268.40 (a)(b)(e))	The waste, tank, and piping must be treated if necessary, to meet LDR criteria before disposal.	A

Table 7-3. (continued).

Category	Citation	Reason	Relevancy[a]
	"Treatment Standards for Hazardous Debris" IDAPA 16.01.05.011 (40 CFR 268.45(a)(b)(c)(d))		A
	"Universal Treatment Standards" IDAPA 16.01.05.011 (40 CFR 268.48(a))		A
	"Alternative Treatment Standards for Contaminated Soil" IDAPA 16.01.05.011 (40 CFR 268.49)	Applies to any contaminated soil that is to be removed from the V-Tank and disposed at an approved facility on the INEEL or off the INEEL.	A
	"CERCLA Off-Site Policy" 40 CFR 300.440		A
Toxic Substance Control Act – PCBs	"PCB Remediation Waste : Performance-based Disposal" 40 CFR 761 (b)(1)	The tank waste must be treated or decontaminated to meet PCB disposal criteria. Applies only to the tank waste.	A
	"Decontamination Standards and Procedures : Self-implementing Decontamination Procedures" 40 CFR 761.79(c)(1) and (2)	Applies to decontamination of the tank, piping, and equipment that comes into contact with the tank waste.	A
	"Decontamination solvents" 40 CFR 761.79(d)	Applies to solvents used for decontamination.	A
	"Limitation of exposure and control of releases" 40 CFR 761.79(e)	Applies to all persons who will be conducting decontamination activities of the tank and piping.	A

Table 7-3. (continued).

Category	Citation	Reason	Relevancy[a]
	"Decontamination Waste and Residues" 40 CFR 761.79(g)	Applies to the decontamination waste and residuals.	A
TBC			
Radiation Protection of the Public and the Environment	DOE Order 5400.5, Chapter II (1)(a,b)	Order that limits the effective dose to the public from exposure to radiation sources and airborne releases.	
Institutional Controls	Region 10 Final Policy on the Use of Institutional Controls at Federal Facilities	Applies to contamination left in place or remaining above 1E-04 risk.	

a. A = applicable; RA = relevant and appropriate.

NESHAPs = National Emission Standards for Hazardous Air Pollutants

IDAPA = Idaho Administrative Procedures Act

7.2 PM-2A Tank Contents and Contaminated Soils

The PM-2A Tanks site (TSF-26) consists of two abandoned 189,270-L (50,000-gal) UST and the contaminated surface soil around them (see Figure 7-1). The total volume of waste currently in these tanks is 14,500 L (3,800 gal). The tanks are approximately 5 m (15 ft) bgs and rest in concrete cradles.

The tanks were installed in the mid-1950s and stored concentrated low-level radioactive waste from the TAN evaporator from 1955 to 1981. The tanks currently contain sludge contaminated with radionuclides, heavy metals, organic compounds, and PCBs. No liquids are present in these tanks because in 1981 the tanks were partially filled with material to absorb free liquid. The soil above the tanks was contaminated by spills containing Cs-137 when waste was transferred from the tanks. Contaminated soil was removed in 1996 as part of an earlier removal action; however, sampling following the removal action indicated an overall area of 30.5 m (100 ft) by 21.3 m (70 ft) to 5.2 m (17 ft) bgs contaminated with Cs-137 that may pose an imminent and substantial endangerment to human health and the environment. The TSF-26 CERCLA site does include ancillary piping and equipment in the immediate vicinity of the tanks.

Currently, the PM-2A site is administratively controlled. The site is fenced and posted with signs that identify it as a CERCLA site. No activities can be performed within the site without contacting the INEEL Environmental Restoration Program, and entry into the site requires radiological control precautions. The purpose of these controls is to keep worker exposures ALARA, and to prevent the spread of contaminated soil. The controls reduce current and future occupational exposure at the sites to acceptable levels.

7.2.1 Summary of Site Risks

A HHRA and an ERA were conducted for the PM-2A Tanks. The results of the assessments indicate that this site may present an imminent and substantial endangerment to human health and the environment, and are summarized in Table 7-4. A more detailed discussion of the methods used in the risk assessment process is presented in Section 6 of this ROD. Detailed information about the results of the PM-2A Tanks HHRA and ERA is presented in Sections 6 and 7 of the OU 1-10 RI/FS Report.

7.2.1.1 Human Health Risks. The exposure route and the associated COCs that produce calculated risks greater than or equal to 1 in 10,000 at the site include external radiation exposure of current and future workers and hypothetical future residents by Cs-137. The tanks buried at the site contain sludges contaminated with radionuclides. Risks from the sludges were not calculated in the BRA because there is no evidence to indicate that the tanks have leaked. However, the tank contents were included in the FS Evaluation because they may produce unacceptable human health and ecological risks if they were to escape into the environment.

7.2.1.2 Ecological Risk Assessment. The PM-2A Tank soil was identified in the ERA as having an ecological risk (i.e., the HI) less than the threshold level of 1 and is considered not to pose an unacceptable threat to ecological receptors. No further ERA will be performed at this site.

Table 7-4. Summary of risk estimates for PM-2A Tanks.

Scenario	Total Cancer Risk	Total Hazard Index
Occupational	1 in 1,000	0.00001
Residential	2 in 1,000	1

7.2.2 Summary of Alternatives

In accordance with CERCLA Section 121, the OU 1-10 FS and FS Supplement identified and evaluated remediation alternatives. Any selected alternative had to achieve the remediation goal of 23.3 pCi/g for Cs-137. The Cs-137 FRG of 23.3 pCi/g is a risk-based remediation goal that ensures protectiveness of human health and the environment. This FRG will provide unrestricted land use in 100 years. The principal ARARs evaluated for the V-Tanks were the Hazardous Waste Management Act closure requirements, RCRA treatment and delisting requirements, and PCB disposal criteria. In addition to the "No Action" alternative, four alternatives were evaluated to remediate the PM-2A Tanks:

- Alternative 2: Excavation, Ex Situ Stabilization, and Disposal
- Alternative 3: Soil Excavation, Tank Content Removal, Treatment, and Disposal
- Alternative 4: Soil Excavation and Disposal, In Situ Stabilization of Tank Contents
- Alternative 5: Soil Excavation and Disposal, In Situ Vitrification of Tank Contents.

Details of the alternatives considered and the evaluation process are included in Sections 10 and 11 of the OU 1-10 RI/FS Report and the FS Supplement (DOE-ID 1998c).

7.2.2.1 Alternative 2: Excavation, Ex Situ Stabilization, and Disposal. Under Alternative 2, a temporary containment structure would be built over the tank site. The soil would be excavated, the tank contents would be removed and stabilized, and the tanks would be decontaminated and removed. The soil, tank contents, and tanks would then be disposed, either on the INEEL (Alternative 2a) or off the INEEL (Alternative 2b). The excavated areas would be backfilled with clean soil. The cost for these alternatives is $10.0 and $12.8 million, respectively.

Both variations of Alternative 2 would accomplish the site RAOs in a short timeframe because the soil contamination and tank contents would be permanently removed. It is expected that no institutional controls would be required after the remedial action; however, this will be verified by confirmational sampling.

Both variations of Alternative 2 would protect human health and the environment and comply with regulations. In addition, both variations would reduce the mobility of the contaminants through stabilization. Long-term effectiveness would be high because contaminated materials would be removed. However, neither variation would provide a high degree of short-term effectiveness because removing the tanks and tank contents would increase the chance of worker exposure. Implementability of this alternative would be moderate.

7.2.2.2 Alternative 3: Soil Excavation, Tank Content Removal, Treatment, and Disposal. Alternative 3 is similar to Alternative 2, except that the decontaminated tanks would remain in place. Following excavation of the contaminated soil and removal and treatment (if required) of the tank contents, the tanks would be decontaminated and then filled with an inert material like sand or grout. The excavated areas would be backfilled with clean soil.

Alternative 3 includes three variations, which differ in the technology for removing the tank contents and in the location for disposing contaminated soil and treated materials. Under Alternative 3a, the excavated soil and treated material would be disposed on the INEEL, while under Alternative 3b, the soil and treated material would be disposed off-Site. Both would remove the tank contents by adding water to liquefy the contents so they can be removed using pumping technology. Under Alternative 3d, contaminated soil and tank waste would be disposed on the INEEL, but a commercially available, high-powered industrial vacuum would be used to empty the tanks without the addition of water. The vacuum would effectively mix the tank contents, resulting in a waste form that may be acceptable for on-Site disposal without further treatment. Sampling will be carried out on the tank contents to determine whether additional treatment is required. Stabilization or other treatment would be performed as required for disposal.

All three variations of Alternative 3 would accomplish the site RAOs in a short timeframe because the contamination and tank contents would be permanently removed. It is expected that no institutional controls would be required after the remedial action; however, this will be verified by confirmational sampling. The costs for these alternatives are \$9.1, \$12.1, and \$5.9 million, respectively.

All three variations of Alternative 3 would protect human health and the environment and would comply with regulations. All would provide a high degree of long-term effectiveness by removing the contaminated soil and tank contents and decontaminating the tanks. However, the removal and decontamination processes increase the chance of worker exposure and, therefore, lower the short-term effectiveness. Implementability of Alternative 3 would be moderate to high. The cost of Alternative 3a and 3b would be relatively high, compared to other alternatives. Because use of the industrial vacuum is likely to result in a waste form not requiring additional treatment, Alternative 3d has a substantially lower cost.

7.2.2.3 Alternative 4: Soil Excavation and Disposal, In Situ Stabilization of Tank Contents. Alternative 4 would involve building a temporary containment structure, excavating contaminated soil, stabilizing the tank contents, filling the remaining space in the tanks with an inert material like sand or grout, and disposing of the excavated soil. The excavated areas would be backfilled with clean soil. Because the tank contents would remain in place, institutional controls and long-term monitoring would be required.

Two variations are included under Alternative 4. Under Alternative 4a, the excavated soil would be disposed of on the INEEL, while under Alternative 4b, the excavated soil would be disposed of off the INEEL. The costs for these alternatives are \$6.1 and \$8.8 million, respectively.

Both variations of Alternative 4 would accomplish the site RAOs in a short timeframe because the contaminated soil is removed and the tank contents would be stabilized. To accomplish the RAOs, long-term institutional controls may be implemented to protect future occupational and residential land use.

Both variations of Alternative 4 would protect human health and the environment and may comply with the applicable regulations. Treating the tank contents in place would limit the potential for worker exposure, increasing the short-term effectiveness. Stabilization would not reduce the toxicity or volume of the waste; it would reduce mobility. Although both variations of Alternative 4 are based on a proven technology, it would be difficult to effectively treat all the waste using in situ methods. Therefore, implementability would be low. Long-term effectiveness would be moderate. Institutional controls and long-term monitoring would be required.

7.2.2.4 *Alternative 5: Soil Excavation and Disposal, In Situ Vitrification of Tank Contents.* Alternative 5 involves ISV of the tanks, their contents, and the surrounding soil. An electrical current would be used to melt the tanks, tank contents, and surrounding soil, which would then solidify into a glass-like material. The organic compounds would be destroyed or driven off, and heavy metals and radionuclides would be trapped inside the glassy solid or captured in the off-gas system. Organic compounds and particulates released during the process would be contained and treated at the surface. The costs for these alternatives are $13.6 and 16.3 million, respectively.

Alternative 5 includes two variations for soil disposal. Excavated soil outside the treatment area would be transported to an acceptable location, either on the INEEL (Alternative 5a) or off the INEEL (Alternative 5b). The excavated areas would be backfilled with clean soil.

Both variations of Alternative 5 would accomplish the site RAOs in a short timeframe because the contaminated soil is removed and the tank contents are vitrified. To accomplish the RAOs, long-term institutional controls may be implemented to protect future occupational and residential land use.

Alternative 5 would protect human health and the environment and may comply with the applicable regulations. The ISV would reduce toxicity by destroying the organic compounds and PCBs. Mobility of the radionuclides and metals would be reduced by dispersing them throughout and binding them into the glass-like solid. In addition, this alternative would provide minimal worker exposure to contaminants because the tank contents would not be directly contacted. However, ISV has never been demonstrated on tanks of this size; therefore, its implementability is uncertain. Long-term effectiveness would be lower than with other treatment alternatives, because the treated tank contents would remain in place. Institutional controls and long-term monitoring would be required.

7.2.3 Summary of Comparative Analysis of Alternatives

The following sections summarize the evaluation of the candidate remedial alternatives according to the criteria identified in Section 7.1.3 of this ROD. Detailed comparative analyses can be found in Section 12 of the RI/FS Report and the FS Supplement, Section 6.

7.2.3.1 *Threshold Criteria.* The two threshold criteria, which must be satisfied by the selected remedy, are overall protection of human health and the environment, and compliance with ARARs. All variations of Alternatives 2, 3, 4, and 5 meet both of the threshold criteria.

7.2.3.2 *Balancing Criteria.* The five balancing criteria are: (1) long-term effectiveness and permanence, (2) reduction of toxicity, mobility, or volume through treatment, (3) short-term effectiveness, (4) implementability, and (5) cost.

Alternatives 2a, 2b, 3a, 3b, and 3d best satisfy the criterion of long-term effectiveness because all contamination would be removed. Alternatives 4a, 4b, 5a, and 5b partially satisfy the long-term effectiveness criteria; long-term institutional controls and monitoring would be required to assess the effects of the contamination left in place. Reduction of toxicity, mobility, or volume through treatment is best achieved by Alternatives 5a and 5b. These alternatives would reduce toxicity by binding radionuclides and heavy metals into the glass-like solid, and would reduce toxicity by destroying the organic compounds and PCBs. Alternatives 2a, 2b, 3a, 3b, 3d, 4a, and 4b partially satisfy the reduction criteria; each of these alternatives stabilizes the waste, which reduces the mobility but does not reduce the toxicity or volume. Short-term effectiveness is best satisfied by Alternatives 4a and 4b because the tank contents would be treated in place, reducing the potential for worker exposure. Alternatives 2a, 2b, 3a, 3b, 3d, 5a, and 5b partially satisfy this criterion because of the greater potential for worker exposure.

Alternative 3d best satisfies the implementability criteria because the waste form would not require treatment before disposal. Alternatives 2a, 2b, 3a, and 3b partially satisfy the implementability criteria because they would require treatment before disposal. Alternatives 4a, 4b, 5a, and 5b least satisfy implementability because of the uncertainty and difficulty of the in situ treatment. The estimated cost of Alternatives 3d and 4a is lowest, and that of Alternatives 5a and 5b the highest.

7.2.3.3 Modifying Criteria. The modifying criteria, used in the final evaluation of remedial alternatives, are state and community acceptance. State acceptance is demonstrated by IDHW concurrence with the selected remedial alternative and signature of this ROD. The IDHW was involved in the development and review of the RI/FS Report, the Proposed Plans, the FS Supplement, this ROD, and other project activities such as public meetings.

For community acceptance, the factors that are considered include which elements of the alternatives interested persons in the community support, have reservations about, or oppose. The comments received on the Proposed Plan form the record of these opinions and concerns.

Generally, the selected remedy is supported, with concerns expressed about its compliance with ARARs and verifiability. The Responsiveness Summary (Part III) portion of the ROD documents the full range and content of the public comments received regarding the recommended action at this site.

7.2.4 Selected Remedy: Alternative 3d, Soil Excavation, Tank Content Vacuum Removal, Treatment, and Disposal

Based on consideration of the requirements of CERCLA, detailed analysis of alternatives, and public comments, the Agencies selected Alternative 3d, Soil Excavation, Tank Content Vacuum Removal, Treatment, and Disposal. The selected remedy will satisfy the NCP to address the low-level threat waste posed by the PM-2A Tanks.

The major components of the selected remedy for the PM-2A Tanks include:

- Sampling of the surface soils for additional contaminants identified in the PM-2A Tanks to support a no-longer-contained-in determination and HWD
- Excavating contaminated soil
- Disposing the contaminated soil at an acceptable soil repository
- Sampling tank contents
- Removing tank contents using commercial vacuum excavation technology
- Verification of the waste form not requiring treatment before disposal (and treating tank contents to meet waste acceptance criteria, if necessary)
- Disposing the tank contents and IDW at an acceptable repository (or other approved facility, if necessary)
- Decontaminating the tanks and filling with an inert material

- Post-remediation sampling at the bottom of the excavation to verify FRGs are met and analyze for additional contaminants in the PM-2A Tank content waste to perform a risk analysis in support of an institutional control determination at this site

- Filling the excavated area with clean soil, then contouring and grading to surrounding soil

- Institutional controls consisting of signs, access control, and land-use restrictions may be established and maintained depending on the results of the sampling activities.

The selected remedy addresses the risks posed by the PM-2A Tanks by effectively removing the source of contamination and, thus, breaking the pathway by which a future receptor may be exposed.

Modifications to the excavation equipment will be made as needed to provide shielding (e.g., lead windows and lead lining on exterior-facing surfaces) and personal exposure protection (e.g., supplied air, positive-pressure ventilation systems, and HEPA filters). The following paragraphs detail the selected remedy.

Contaminated soil that is above the 23.3 pCi/g FRG for Cs-137 will be removed and will be packaged and disposed of at an acceptable soil repository, along with all debris (piping, IDW, etc.). Using radiological screening, uncontaminated soils (those with activities less than the remediation goal) will be stockpiled separately from the contaminated soils.

Waste characterization sampling will be conducted on the soil stockpiles and a wooden box full of soil that was discovered at this site during the 1995 OU 10-06 removal action. Based on the sampling results, uncontaminated soil will be returned to the excavation. Verification sampling within the excavation will be conducted before backfilling with uncontaminated soils. Treatment of soils in the wooden box is not anticipated, but options for treatment will be further evaluated upon receipt of the waste characterization data. Because of uncertainties of the contaminants in the wooden box, more than one treatment step could be required.

The vacuum excavation technology uses the kinetic energy of a high-velocity air stream to penetrate, expand, and break up solids and slurries. The loosened materials are captured by a high-powered vacuum air stream. The excavation head removes 5 to 12 cm (2 to 5 in.) of solids in a single pass and can work at depths greater than 9 m (30 ft). Waste from the tanks will be removed without the addition of any liquids. Following excavation of the contaminated soil and removal of the tank contents, the tanks will be decontaminated and then filled with an inert material like sand or grout.

Based on the RI results, the sludge associated with the PM-2A Tank is considered to be F001-listed waste. Although initial analysis was not performed per RCRA protocols and an accurate RCRA-waste determination cannot be made, the RI results indicate the waste may meet disposal criteria for a RCRA-compliant low-level waste landfill without treatment. Additional sampling will be required to verify treatment is not required before disposal.

Treatment, if required, would most likely consist of chemical stabilization since it is assumed from available analytical results the trichloroethylene (TCE) for which the waste is coded F001 may be below the LDR criteria, but the waste may be characteristic for metals. If the waste, when further characterized, is coded for metals, treatment will satisfy the applicable disposal criteria. The costs associated with treatment are not included in the cost estimate because the vacuum excavation technology is expected to produce a waste form that would be acceptable for on-Site disposal without further treatment.

Following removal a of the tank contents and contaminated soil, the waste would be disposed of at a site that will meet disposal requirements. The actual disposal location, which could be the Radioactive Waste Management Complex (RWMC), the proposed ICDF, or another facility on or off the INEEL, will be determined during remedial design following implementation of the ROD. Selection of the ICDF for disposal of TAN materials depends at least in part on the timeframe associated with operation of the facility (scheduled for receiving waste in the Year 2005) and its waste acceptance criteria.

If treatment were determined to be required, treatability tests may be necessary to ensure that the stabilized waste met the LDRs. Mixing of the sludge with the stabilizing materials would be conducted using readily available, conventional equipment. If the on-Site disposal option is not available at the time of the remedial action, contaminated material may be disposed of at an off-Site facility. Some changes may be made to the remedy as a result of the remedial design and construction process that result from the engineering design process.

Based on the results of post remedial action sampling, institutional controls may be required. The controls, if necessary, will provide unrestricted land use in 100 years, and will undergo 5-year reviews, as discussed in Section 10. Additional institutional control information is in Section 12. Some changes may be made to the remedy as a result of the remedial design and construction process that result from the engineering design process.

7.2.4.1 Estimated Cost for the Selected Remedy. The estimated capital and maintenance costs for implementing the selected remedy at the PM-2A Tank is $5,933,652. The costs are presented in net present value, which allows for equal comparison of long-term and short-term alternatives while factoring in inflation. Details of the cost estimates are presented in the Appendix A of the FS Supplement and summarized in Table 7-5.

7.2.4.2 ***Protection of Human Health and the Environment.*** Alternative 3d would be effective for the long-term protection of human health through removal of contaminants from the soil pathway and removal of contaminants from the tank followed by treatment (if required) and disposal of wastes, tank decontamination, and closure. This would eliminate the potential for future direct contact with or exposure to site contaminants. The remaining excess lifetime cancer risk at the site after the remedial action will be less than or equal to 1 in 10,000. The potential treatment processes would result in generation of some residual concentrated wastes as an output from the treatment process that will be properly dispositioned.

7.2.4.3 Compliance with ARARs. The selected remedy meets the identified ARARs. The ARARs, including chemical-specific, action-specific, and TBC guidance, for Alternative 3d, Soil Excavation, Tank Content Vacuum Removal, Treatment, and Disposal, are shown in Table 7-6.

7.2.4.4 Cost Effectiveness. The selected remedial action is cost-effective because it provides overall effectiveness in meeting the RAOs proportionate to its costs. When compared to other potential remedial actions, the selected remedy provides the best balance between cost and effectiveness in protecting human health and the environment.

Table 7-5. Cost estimate summary for the PM-2A Tanks (TSF-26) selected remedy.

		$ Fiscal Year (FY)-97
FFA/CO Management and Oversight		
	WAG 1—Management	425,556
Remediation Oversight		
	Construction Oversight	341,851
	Construction Project Management	569,751
	Remedial Action Document Preparation	24,233
	Remedial Action Report	10,880
	Packaging, Shipping, Transportation Documentation	19,512
	WAG-Wide Remedial Action 5-Year Review	39,474
Remedial Design		
	Title Design Construction Document Package	84,960
	Remedial Design Documentation per WAG 1 Baseline	31,928
	Prefinal Inspection Report	8,000
Remedial Action		
	Site Preparation	656,000
	On-Site Treatment of Tank Waste	489,500
	Excavate and Disposal of Soils	845,800
	Support Materials and Labor	393,000
	Subcontractor Indirect Costs	1,121,971
CAPITAL COST SUBTOTAL		5,062,416
	Contingency @ 30%	1,518,725
TOTAL CAPITAL COST IN FY-97 DOLLARS		6,581,140
TOTAL CAPITAL COST IN NET PRESENT VALUE		5,933,652
Operations		
	WAG 1—Management	N/A
	Annual Operations and Maintenance Reports	N/A
Decontamination and Dismantlement		N/A

Table 7-5. (continued).

	$ Fiscal Year (FY)-97
Surveillance and Monitoring	N/A
OPERATION & MAINTENEACE (O&M) COST SUBTOTAL	N/A
Contingency @ 30%	N/A
TOTAL O&M COST IN FY-97 DOLLARS	N/A
TOTAL O&M COST IN NET PRESENT VALUE	N/A
TOTAL PROJECT COST IN NET PRESENT VALUE	5,933,652[a]

a. The total project cost does not include off-Site disposal of the final waste that may be needed if on-Site disposal is not available.

Table 7-6. ARARs for the PM-2A Tanks (TSF-26) selected remedy.

Category	Citation	Reason	Relevancy[a]
Chemical-Specific ARARs			
Rules for the Control of Air Pollution in Idaho	"Toxic Substances" IDAPA 16.01.01.161	The release of carcinogenic and noncarcinogenic contaminants into the air must be estimated before start of construction, controlled, if necessary, and monitored during soil excavation, waste removal, treatment if performed, and tank decontamination.	A
	"Toxic Air Emissions" IDAPA 16.01.01.585 and .586		
NESHAPs	"Radionuclide Emissions from DOE Facilities" 40 CFR 61.92	Limits exposure of radioactive contamination release to 10 mrem/yr for the off-Site receptor, and establishes monitoring and compliance requirements.	A
	"Emission Monitoring" 40 CFR 61.93		
	"Emission Compliance" 40 CFR 61.94(a)		
Action-Specific ARARs			
Rules for the Control of Air Pollution in Idaho	"Fugitive Dust" IDAPA 16.01.01.650 and .651	Requires control of dust during excavation and removal of waste from the tanks.	A
Requirements for Portable Equipment	IDAPA 16.01.01.500.02	Portable equipment for waste removal and treatment, if performed on-Site, and any portable support equipment must be operated to meet state and federal air emissions rules.	A
Resource Conservation and Recovery Act (RCRA) – Standards Applicable to Generators of Hazardous Waste	"Hazardous Waste Determination" IDAPA 16.01.05.006 (40 CFR 262.11)	A HWD is required for soils excavated for disposal, waste from the tanks, and any secondary waste generated during remedation.	A
	"Manifest" IDAPA 16.01.05.006 (40 CFR 262 Subpart B)	Establishes requirements for transporting hazardous waste to treatment and/or disposal site.	A

Table 7-6. (continued).

Category	Citation	Reason	Relevancy[a]
	"Pre-Transportation Requirements" IDAPA 16.01.05.006 (40 CFR 262.30 – 262.33)		
RCRA– Standards for Owners and Operators of Hazardous Waste Treatment Storage and Disposal Units	"General Waste Analysis" IDAPA 16.01.05.008 (40 CFR 264.13 (a)(1-3))	Analysis requirements apply to soils excavated for disposal, waste removed from the tanks, and secondary waste generated during remediation.	A
	"Security of Site" IDAPA 16.01.05.008 (40 CFR 264.14)	Measures must be taken to restrict access to the site during waste removal, and treatment, if performed, tank decontamination, and tank closure.	A
	"General Inspections" IDAPA 16.01.05.008 (40 CFR 264.15)	Regular inspections must be performed during remediation.	A
	"Personnel Training" IDAPA 16.01.05.008 (40 CFR 264.16)	All personnel involved in soil excavation, waste removal, and treatment, if performed, decontamination, and tank closure must be trained.	A
	"Preparedness and Prevention" IDAPA 16.01.05.008 (40 CFR 264 Subpart C)	Applies to soil excavation, waste removal, and treatment, if performed, and decontamination activities.	A
	"Contingency Plan and Emergency Procedures" IDAPA 16.01.05.008 (40 CFR 264 Subpart D)	Applies to soil excavation, waste removal and treatment, if performed, and decontamination activities.	A
	"Equipment Decontamination" IDAPA 16.01.05.008 (40 CFR 264.114)	All equipment used during remediation must be decontaminated if hazardous waste is contacted.	A
	"Use and Management of Containers" IDAPA 16.01.05.008 (40 CFR 264.171 – 177)	Applicable to soils, tank waste, and any secondary hazardous waste generated remediation, which is managed in containers.	A

Table 7-6. (continued).

Category	Citation	Reason	Relevancy[a]
	"Tank Closure and Post Closure Care" IDAPA 16.01.05.008 (40 CFR 264.197(a))	All waste and contaminated soils must be removed and all tank structures to be left in the ground decontaminated.	A
	"Miscellaneous Units (only if treatment is required to meet LDRs)" IDAPA 16.01.05.008 (40 CFR Subpart X (except 264.603))	Requirements for an on-Site treatment system for the tank waste, if required.	A
RCRA – Land Disposal Restrictions	"LDR Treatment Standards" IDAPA 16.01.05.011 (40 CFR 268.40(a)(b)(e))	The waste, tank, and piping must be treated if necessary, to meet LDR criteria before disposal.	A
	"Treatment Standards for Hazardous Debris" IDAPA 16.01.05.011 (40 CFR 268.45(a)(b)(c)(d))		A
	"Universal Treatment Standards" IDAPA 16.01.05.011 (40 CFR 268.48(a))		A
	"Alternative Treatment Standards for Contaminated Soil" IDAPA 16.01.05.011 (40 CFR 268.49)	Applies to any contaminated soil that is to be removed from the PM-2A Tank for disposal at an approved facility on the INEEL or off the INEEL.	A
	"CERCLA Off-Site Policy" 40 CFR 300.440		A
To-Be-Considered			
Radiation Protection of the Public and the Environment	DOE Order 5400.5, Chapter II (1)(a,b)	Order that limits the effective dose to the public from exposure to radiation sources and airborne releases.	

Table 7-6. (continued).

Category	Citation	Reason	Relevancy[a]
Institutional Controls	Region 10 Final Policy on the Use of Institutional Controls at Federal Facilities	Applies to contamination left in place or remaining above 1E-04 risk.	

a. A = applicable; RA = relevant and appropriate.

NESHAPs = National Emission Standards for Hazardous Air Pollutants

IDAPA = Idaho Administrative Procedures Act